

Rush

Work Order ID 84763

\*84763\*

Page 1

May-23-12 7:11:35 AM

Item ID: D4202-1

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Spacer

Start Date: 5/23/12

Start Qty: 400.00

\*400\*

Cust Item ID:

Required Date: 5/31/12

Req'd Qty: 400.00

\*400\*

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start \*NR1\*

QC:

Date:

SPC (Y/N):

Date:

Stop \*NR2\*

Sequence ID/

Operation

Set Up/

Tool ID

Tool #

Plan

Accept

Reject

Reject

Insp.

Work Center ID

Description

Run Hours

Code

Qty

Qty

Number

Stamp

Draw Nbr

Revision Nbr

D4202

C

100

0.00

\*100\*

Hardinge

Hardinge CNC LATHE SMALL

Memo

0.00

Hardinge CNC Lathe Small

1- Machine as per Echo FB015.

FOLIO REV:    

DWG REV:    

2- Deburr

110

QC2- Inspect parts off machine FAI/FAIB

0.00

\*110\*

QC

Memo

0.00

Quality Control

Re 12.5.29 400

Re 12.5.29 400

# Work Order ID 84763

\*84763\*

Page 2

May-23-12 7:11:35 AM

Item ID: D4202-1 Accept \*N900040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: Spacer  
 Start Date: 5/23/12 Start Qty: 400.00 \*400\* Cust Item ID:  
 Required Date: 5/31/12 Req'd Qty: 400.00 \*400\* Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* QC Quality Control	QC8- Inspect parts - second check  Memo	0.00  0.00		12/05/29		400	7		
130 *130* Outsource1 Outsource process - Heat Treat	Outsource process - Heat Treat  Memo ***HEAT TREAT AS PER DWG D4202***	0.00  0.00		<del>D/O: 17136</del> D/O: 17265					<del>CZ 12/06/05</del> CZ 12/06/20 400
140 *140* Packaging Packaging	Receive & Inspect for Damage & Mat'l Certs  Memo	0.00  0.00							<del>CZ 12/06/18</del> CZ 12/03 400

# Work Order ID 84763

**\*84763\***

Page 3

May-23-12 7:11:35 AM

Item ID: D4202-1 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Spacer  
 Start Date: 5/23/12 Start Qty: 400.00 **\*400\*** Cust Item ID:  
 Required Date: 5/31/12 Req'd Qty: 400.00 **\*400\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	QC6- Inspect dimensions to drawing	0.00							
<b>*150*</b>									
QC	Memo	0.00							
Quality Control									
190	Identify as per dwg & Stock Location: <u>LG</u>	0.00							
<b>*190*</b>									
Packaging	Memo	0.00							
Packaging	***STOCK IN SKIDTUBE CELL***								
200	QC21- Final Inspection - Work Order Release	0.00							
<b>*200*</b>									
QC	Memo	0.00							
Quality Control									

7400  
ET4

400X

SP  
12-7-3

12/7/4

MF  
12-09-03

# Picklist Print

May-23-12 7:11:34 AM

Page 1

Work Order ID: 84763

Parent Item: D4202-1

Parent Item Name: Spacer

Start Date: 5/23/12

Required Date: 5/31/12

Start Qty: 400.00

Required Qty: 400.00

Comments: IPP REV:A NEW ISSUE 10-12-07 JLM VERIFIED:DD IPP REV:B AS PER REV B 11-04-05 JLM VERIFIED BY:DD IPP Rev:C 11.12.19 PER DWG REV.C DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6T0.500W.058 6061-T6 RD Tube .500 x.058W		Purchased	No			100	f	356.3730	0.35	147.36842			

Location	Loc Qty	Loc Code
MAT014	356.373	
117084	23.242	
117890	0.1	
119160	1.914	
120935 ✓	331.117	

29 R.5-29

142

84763

**D4202-1**

Page 1 of 1

Measured by: Ro

**Audited by:** B. a

**Preliminary Approval:**

**Date:** 12.5.29

**Date:** 12/05/20

**Date:**Rev**Date**

## Change

Revised by

**Approved**

**A**

11.01.20

## New Issue

KJ44

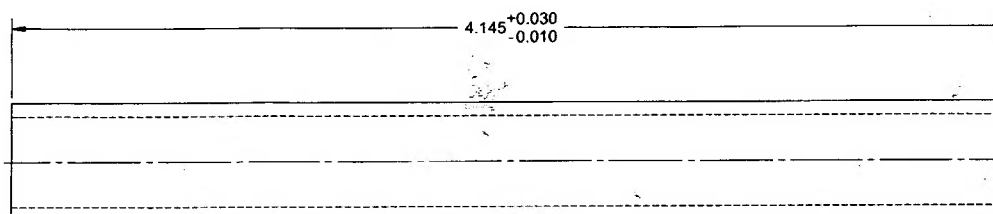
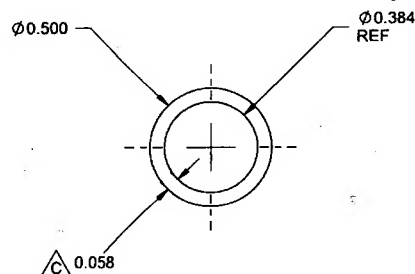
**B**

**11.04.05**

Dimensions updated per Dwg Rev B

KJ

101



# **D4202-1 SPACER**

*w/680763*

RELEASED  
2011-12-14

- NOTES:**
- 1) MATERIAL: 6061-T4/T42 ALUMINUM TUBING PER WW-T-700/6, AMS 4081, OR ASTM B210 / B221 / B241  
REF DART SPEC M6061T4T0.500W.058  
OR  
6061-T6/T62 ALUMINUM TUBING PER WW-T-700/6, QQ-A-200/8, QQ-A-225/8, AMS 4080 / 4082, OR ASTM B210 / B221 / B241  
REF DART SPEC M6061T6T0.500W.58  
HEAT TREAT TO -T4/-T42 CONDITION. MIN UTS = 30 KSI (60 HREW MIN)
  - 2) FINISH: NONE
  - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
  - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
  - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
  - 6) IDENTIFICATION: NONE
  - 7) WEIGHT: 0.03 lbs

C	6061-T4 WAS 6061-T6, 0.058 WAS 0.049	CP	11.12.13
B	0.049 WAS 0.058. REASON: FACILITATE MFG	MB	11.03.22
A	NEW ISSUE	CP	10.09.22
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>JP</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	<i>JP</i>		
CHECKED	<i>ASS</i>	DRAWING NO.	REV. C
MFG. APPR.	<i>JP</i>	D4202	SHEET 1 OF 1
APPROVED	<i>JP</i>	TITLE	SCALE
DE APPR.	<i>JP</i>	SPACER	NTS
DATE	11.12.13	COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID PO17136

Purchase Order Date 6/05/12

PO Print Date 6/08/12

Page Number 1 of 1

Order From :

VC-MET004

METCOR INC.  
560 BOUL. ARTHUR SAUVE  
SAINT-EUSTACHE, QC J7R 5A8  
CA

Contact Name

Vendor Phone

Vendor Fax

Vendor Account Nbr

450 473 1884

450 491 5498

Buyer

Requisition Nbr

Tax Resale Nbr

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

CAD

Destination-Collect

Ship To :

DART AEROSPACE LTD 1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
17-3		D4202-1 SPACER	6/13/12 Yes	400.00	FedEx PI collect	\$0.9900	\$396.00

Special Inst: HEAT TREAT TO -T4/T62 CONDITION  
MIN.UTS = 30KSI (60HREW MIN.)  
PART ARE MADE WITH 6061-T6 HEAT  
TREAT TO T4

NOTE: A DETAIL C OF C REQUIRED

PO Total: \$396.00

CERTIFICATE OF CONFORMITY  
REQ'D UPON DELIVERY

Change Nbr: 3

Change Date: 6/08/12

No substitution or deviation without  
consent.

Certificate of Conformity or Material  
Certification required YES NO



# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ  
ST-EUSTACHE, QC J7R 5A8  
Tel: 450-473-1884 / Fax: 450-491-5498

## Recu de Livraison

Order	Shipper	Shipping Seq.
176652	1	61854

Shipped Complete

Customer **215**  
DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

**Shipped To:**  
DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

Purchase Order Number	Customer Shipper No.	Material Type	Order Date	Carrier
PO17136		AL-6061	2012/6/7	UPS
Quantity	Part No. / Part Name / Part Description			Pounds
400	D4202-1 SPACER			13,

CONTENANT: 1 BOÎTE DE CARTON

Container Type	# Of Containers	Container Comments
BOITE DE CARTON	1	

CERTIFICAT

<b>PACKING</b>	
----------------	--

Quantity Shipped: 400  
Pounds Shipped: 13,00  
Quantity Remaining: 0  
Pounds Remaining: 0,00

CERTIFICAT

Quantity Shipped: 400

Pounds Shipped: 13,00

Signature:

Date:

Shipped ON: 2012/06/15



Metcor Inc.  
560, boul. Arthur-Sauvé  
St-Eustache (Québec) J7R 5A8  
Tél. : 450-473-1884  
Télécopieur / Fax administration : 450-491-5496  
Télécopieur / Fax production : 450-491-6676

**Certificat de conformité**  
**Certificate of Compliance**

BON DE TRAVAIL order	CHARGEMENT load
176652	1

CLIENT / customer 215  
DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY ON K6A 1K7

LIVRÉ À / shipped to:  
DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY ON K6A 1K7

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
PO17136		AL-6081		

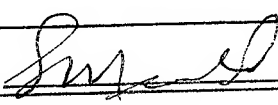

**SPÉCIFICATIONS DU PROCÉDÉ**  
processing specifications

RECEIVED  
DELIVERING TO CONDITION T8  
RECEIVED

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
CONDUCTIVITY	40 - 50 %IACS	40	43 - 44 %IACS
HARDNESS	85 HREW MIN	40	90 - 94 HREW
DURETÉE MESURÉE EN HR15TW = 79-81 HR15TW			

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
400	13	D4202-1 SPACER  CONTENANT: 1 BOÎTE DE CARTON

**COMMENTAIRES / comments**

INSPECTEUR / inspector:   DATE: 2012-06-14

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ  
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

## Certificat de Conformité Détaillé Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
176652	1

CLIENT / customer 215

DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
PO17136		AL-6061		

### SPÉCIFICATIONS DU PROCÉDÉ processing specifications

SOL ANNEAL  
SINGLE AGING TO CONDITION T6  
AMS 2770 REV.J

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
CONDUCTIVITY	40 - 50 %IACS	40 (60kHz)	43 - 44 %IACS
HARDNESS	85 HREW MIN	40	90 - 94 HREW DURETÉE MESURÉE EN HR15TW = 79-81 HR15TW

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
400	13	D4202-1 SPACER REF.: 84763  CONTENANT: 1 BOÎTE DE CARTON

Operation	Temp. spécifiée Specified Temp	Temps de trempage Spécifié Specified Soak Temp	Atmosphère	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
1.00 CONT. INIT.										
2.00 Degrease										
3.00 PREPARING	COMPTAGE									
4.00 PREHEAT 1	529°C	0:30	air			701				
5.00 WATER TEN										
6.00 SOL ANNEAL	529°C	0:35	AIR		WATER 32MAX	701				

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ  
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

## Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
176652	1

CLIENT / customer 215

DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY

ON K6A 1K7

Operation	Temp. spécifiée Specified Temp	Temps de trempe Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
7.00 QUENCHDE										
8.00 WATER TEN										
9.00 PREPARING										
10.00 AGE HARDE	177°C +/-6°C	8 hrs	air			702				
11.00 HARDN INS										
12.00 CONDUCT										
13.00 FINAL INSP							06-14-2012			06-14-2012

### COMMENTAIRES / comments

APPROUVÉ par / Approved by:

DATE: 2012-06-15

/ Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client./We certify that all the information on this report is exact and in accordance with the order requirements.

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ

ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

## Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
177112	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
P017265		AL-6061		

### SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

SOL-ANN-AGE

SINGLE AGING TO CONDITION T42

87107103

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
CONDUCTIVITY	35 - 43 %IACS	60 (60kHz)	37 - 39 %IACS
HARDNESS	60 HREW MIN	60	69.5 - 72 HREW DURETEE MESUREE EN HR15TW = 67.5-68.8 HR15TW

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
600	20	D4202-1 SPACER (200) 83263 (400) 84763 CONTENANT : 1 BOITE DE CARTON

Operation	Temp. spécifiée Specified Temp	Temps de trempe Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
1.00 CONT. INIT.										
2.00 Degrease										
3.00 PREPARING	COMPTAGE									
4.00 PREHEAT 1	529°C	0:30	air			701				
5.00 WATER TEN										

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ  
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

## Certificat de Conformité Détaillé Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
177112	1

CLIENT / customer 215

DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY


ON K6A 1K7

1

Operation	Temp. spécifiée Specified Temp	Temps de trempe Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
6.00 SOL ANNEA	529°C	0:35 +/- 5 min	AIR		WATER 40MAX	701				
7.00 QUENCHDE										
8.00 WATER TEM										
9.00 PREPARING										
10.00 AGE HARDE		96:00								
11.00 HARDN INS										
12.00 CONDUCT										
13.00 FINAL INSP							06-27-2012			06-27-2012

### COMMENTAIRES / comments

APPROUVÉ par / Approved by:



DATE: 2012-06-28

/ Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client./We certify that all the information on this report is exact and in accordance with the order requirements.



Metcor Inc.  
560, boul. Arthur-Sauvé  
St-Eustache, Québec J8P 5A8  
Tél. 468-473-1800  
Fax 468-473-1801  
1-800-491-5498  
1-800-491-5454

**Certificat de Conformité**  
**Certificate of Compliance**

BON DE TRAVAIL order	CHARGEMENT load
177112	1

CLIENT / customer 215  
DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY ON K6A 1K7

LIVRÉ À / shipped to:  
DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY ON K6A 1K7

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
PD17265		AL-8061		

**SPÉCIFICATIONS DU PROCÉDÉ**  
processing specifications

SOL-ANN-AGE  
SINGLE AGING TO CONDITION T42

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
CONDUCTIVITY	35 - 43 %IACS	60	37 - 39 %IACS
HARDNESS	80 HREW MIN	60	69.5 - 72 HREW
			DURETÉE MESURÉE EN HR15TW = 67.5-68.8 HR15TW

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
600	20	D4202-1 SPACER (200) 83263  (400) 84763  CONTENANT : 1 BOITE DE CARTON

**COMMENTAIRES / comments**

INSPECTEUR / inspector:   DATE: 2012-06-27